

## CLAIMS

What is claimed is:

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a1
1. A fiber optic communication system, comprising:  
multiple channels, one or more of said channels having variable  
bandwidth.
  2. The system of Claim 1, wherein said bandwidth is varied by using  
a tunable filter.
  3. The system of Claim 2, wherein said tunable filter is an acousto-  
optic tunable filter.
  4. A fiber optic communication system, comprising:  
multiple channels, wherein the bit rates of one or more of said  
channels are dynamically tunable.
  5. The system of Claim 4, wherein said channels are tuned using  
tunable filters.
  6. The system of Claim 5, wherein said tunable filters are acousto-  
optic tunable filters.

- 5 7. A fiber optic communication system, comprising:  
multiple emitters operably connected to couple signals into a transmission medium;  
multiple modulators operably connected to modulate data onto one or more of said signals;  
multiple tunable passband filters operably connected to filter one or more of said signals by selectively tuning passbands of said filters.

~~8. A fiber optic communication system, comprising:  
multiple channels, wherein the spectrum width of said channels can be selectively combined into a single channel.~~

~~9. A fiber optic communication system, comprising:  
a plurality of channels, wherein the spectrum width of one or more of said channels can be selectively divided into multiple channels.~~

10. A method of operating an optical communication system, said system having multiple channels, comprising the step of:  
dynamically tuning the spectrum widths of said channels.

11. The method of Claim 10, wherein said spectrum widths are tuned using tunable filters.

12. A method of allocating bandwidth on an optical communication system, said system having multiple channels, comprising the step of:

5 combining multiple lower bit rate channels to provide a higher bit rate channel.

13. A method of allocating bandwidth on an optical communication system, said system having multiple channels, comprising the step of:

5 dividing a higher bit rate channel to create multiple lower bit rate channels.

14. A method of allocating bandwidth on an optical communication system, comprising the steps of:

5 modulating data onto one or more carrier signals to produce one or more modulated signals, each of said modulated signals having spectrum width;

allocating bandwidth to said modulated signals according to the spectrum width of said modulated signals.

15. The method of Claim 14, wherein said bandwidth is allocated by tuning tunable filters.

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a2  
Add B1  
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D1